

## 3. On a Small Collection of Mammals from Egypt.

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The following is an account of a small collection of Mammals brought home from Egypt. It was made up partly of a few skins and skulls which Capt. S. S. Flower had brought together, chiefly those of animals that had died in the Giza Zoological Gardens or had been killed as vermin, partly of animals brought in from the district by natives, whom Capt. Flower had commissioned on my behalf, and lastly of specimens collected by myself. Unless otherwise mentioned the specimens came from near Cairo.

The collection contains some 28 species, of which one (*Dipodillus mariae*) is new to science, in addition to which I have been enabled to resuscitate the name *Procavia burtoni* for the Egyptian Hyrax, which is quite distinct from both the Sudan and Palestine species. An example of *Acomys russatus*, a very rare species, which has hitherto only been found locally in Palestine and Syria, was procured within a short ride of Cairo. The material has also enabled the range of other and commoner species to be extended, e. g. *Gerbillus mackilligini*, *Lepus innesi*.

I must acknowledge my indebtedness to Messrs. Oldfield Thomas, R. C. Wroughton, and K. Andersen, who have given me much help in the working out of the collection, which is now in the British Museum, and lastly to Capt. Flower, who is doing so much for the Zoology of Egypt and without whose kind co-operation this collection would never have been brought together.

## ROUSETTUS ÆGYPTIACUS (E. Geoffr.).

*Pteropus ægyptiacus* E. Geoffr. St. Hil. Ann. du Mus. xv. p. 96 (1810).

*Rousettus ægyptiacus* de Wint. in Anders. Zool. Egypt, Mamm. p. 84 (1902).

I found this Fruit-Bat extremely abundant in the Zoological Gardens. They have never been found roosting there in the daytime, but arrive as soon as it is dark and commence feeding on the fig-trees. Later in the year, as other fruits ripen they change their diet. Although most of my specimens were obtained in February and March, the reputed breeding season, none of the females were gravid. Several young about three-quarter grown were shot. The White Owl (*Strix flammea*) occasionally preys largely on these bats.

## RHINOLOPHUS ACROTIS BRACHYGNATHUS K. Anders.

*Rhinolophus acrotis brachygnathus* Anders. Ann. Mag. N. H. ser. 7, vol. xv. p. 73 (1905).

One male from the Giza Gardens.

## NYCTERIS THEBAICA E. Geoffr.

*Nycteris thebaica* E. Geoffr. St. Hil. Ann. du Mus. xx. p. 20, pl. i. (1813); de Wint. in Anders. Zool. Egypt, Mamm. p. 107 (1902).

A single specimen of this species was obtained in the Fayum.

## PIPISTRELLUS KUHLLI (Natt.).

*Vespertilio kuhlii* Natt., in Kuhl, Deutsch. Flederm., Wetterau Ann. iv. p. 55 (1817).

*Pipistrellus kuhlii* Natt., de Wint. in Anders. Zool. Egypt, Mamm. p. 124 (1902).

A common species near Giza, also obtained in the Fayum.

## PIPISTRELLUS RUEPELLII (Fisch.).

*Vespertilio rüppellii* Fischer, Syn. Mamm. p. 109 (1829).

*Pipistrellus rueppelli* Fisch., de Wint. in Anders. Zool. Egypt, Mamm. p. 127 (1902).

A single example obtained in the Fayum.

## RHINOPOMA MICROPHYLLUM (Brünn.).

*Vespertilio microphyllum* Brünnich, Dyrenes Hist. og Dyre-Sam. Universit. Natur-Theater, i. p. 50, pl. vi. figs. 1-4 (1782).

*Rhinopoma microphyllum* (Brünn.), de Wint. in Anders. Zool. Egypt, Mamm. p. 143 (1902).

Of the two specimens of *Rhinopoma* from Aburoash, one proved to belong to this species. Except for skull characters and length of forearm this and the following species seem to be identical, and to live side by side in the same caves.

## RHINOPOMA CYSTOPS Thos.

*Rhinopoma cystops* Thos. Ann. Mag. N. H. ser. 7, vol. xi. p. 497 (1903).

In visiting a cave at Aburoash in which Capt. Flower had told me that bats of this genus were abundant, I was surprised at seeing only about half-a-dozen specimens, of which I secured two examples. Possibly these bats were hibernating in the cracks and fissures, as I was unable to procure some owing to their running into clefts. These bats are able to crawl about easily and with considerable alertness (for a bat) on the sides and roof of the cave. In all the examples procured there was no sign of any accumulation of fat on the tail and thighs. Thinking that the scarcity of these bats was due to hibernation, I again visited the cave about a month later on the 3rd of April, and then only saw three individuals, but possibly I was still too early.

## NYCTINOMUS TÆNIOTIS (Rafinesque).

*Cephalotes tæniotis* Rafinesque, Précis découv. somiol. p. 12 (1814)=*N. cestonii* (Savi).

One example from Aburoash.

*CROCIDURA (Crocidura) OLIVIERI (Less.)*.*Sorex olivieri* Lesson, Man. Mamm. p. 121 (1827).*Crocidura olivieri* (Less.), de Wint. in Anders. Zool. Egypt, Mamm. p. 166 (1902).

I brought back two specimens from Giza, collected by Mr. M. J. Nicoll. The male is slightly greyer in colour than the female. The dimensions (in the flesh) were as follows:—

♂. 22. 9.08. Head and body 107 mm., tail 69, hindft. 21, ear 10.  
 ♀. 12.12.06. „ 110 mm., tail 65, hindft. 16, ear 4.

*CROCIDURA (Crocidura) RELIGIOSA* Is. Geoffr.*Sorex religiosa* Is. Geoffr. Mém. Mus. xv. p. 128, pl. iv. fig. 1 (1827).*Crocidura religiosus* (Is. Geoffr.), de Wint. in Anders. Zool. Egypt, Mamm. p. 168 (1902).

Through the kindness of Capt. Flower I was able to bring back a spirit specimen of this rare and little known species, which had been taken alive at Giza.

*FELIS CHAUS NILOTICA* de Wint.*Felis chaus nilotica* de Wint. Ann. Mag. Nat. Hist. ser. 7, vol. ii. p. 292 (1898); id. in Anders. Zool. Egypt, Mamm. p. 176 (1902).

The Wild Cat is by no means uncommon at Giza and in the course of the year does considerable damage to the animals and birds in the Gardens. During my stay one killed a nearly full-grown sheep, and after dragging it to the edge of the enclosure, devoured a whole fore-quarter. Capt. Flower gave me the following notes as to their weight. The heaviest known was procured at Benha and weighed 21 pounds. On this estate, where many are destroyed every year, the average weight is said to be 16 pounds. An old male caught in the Gardens during my stay weighed 17.6 pounds. The measurements of this specimen were:—Head and body 725 mm., tail 280, hind-foot 178, ear 70.

The following are skull measurements of this example and of two others.

	Greatest length.	Breadth across palate outside pm. 3.	Pm. 2.	Pm. 3.
	mm.	mm.	mm.	mm.
a. Captured wild at Giza, 2.2.09. ♂ .....	134	54	10	15×9
b. At least 6 years old, died in capt., 13.5.08. ♂.	140	59	9	—
c. Shot wild at Giza, —.5.07. ♀ .....	120	50	9	11×7.5

## FELIS LYBICA Meyer.

I never met with this species, but a variety of the domestic cat frequently seen is, at a rough glance, almost exactly like this species.

## VULPES VULPES ÆGYPTIACA (Sonn.).

*Canis ægyptiacus* Sonnini, Nouv. Dict. vi. p. 524 (1816).

*Vulpes vulpes ægyptiacus* de Wint. in Anders. Zool. Egypt, Mamm. p. 227 (1902).

Foxes were fairly plentiful and occasionally seen by day in the desert bordering the cultivation near Aburoash.

## PUTORIUS AFRICANUS (Desm.).

*Mustela africana* Desm. Nouv. Dict. Hist. Nat. xix. p. 376 (1818).

*Putorius africanus* (Desm.), de Wint. in Anders. Zool. Egypt, Mamm. p. 235 (1902).

The Stoat is very common in Cairo and the neighbouring villages, where it inhabits houses, preying presumably on the rats. The amount of white on the underparts shows much variation, but the chin and throat are nearly always white although broken up with patches of brown. Along the rest of the body there is frequently only a narrow median line of white which broadens out on the inner sides of the thighs.

## GERBILLUS PYRAMIDUM Geoffr.

*Gerbillus pyramidum* Is. Geoffr. Dict. Class. N. H. vii. p. 321 (1825); de Wint. in Anders. Zool. Egypt, Mamm. p. 255 (1902).

Two specimens of this species were brought in by local Bedouins. They show considerable variation in colour though the measurements are alike. One is of a pale buff with the dark tips to the hairs largely predominating, the other is much more rufous and the dark tips are minute and hardly affect the general colour. The British Museum collection contains several examples intermediate between these two.

## GERBILLUS TARABULI Thos.

*Gerbillus pyramidum tarabuli* Thos. P. Z. S. 1902, p. 5.

*Gerbillus tarabuli* Thos., Schwann, Nov. Zool. xii. p. 3 (1905).

Mr. Thomas in his original description has regarded this species as a form of *G. pyramidum*, but as we find it now in company with this species, I am inclined to regard it as a form of *G. pygargus*, to which also it approximates in general appearance. Our knowledge of these forms is, however, still so limited that, for the present, it seems best to adhere to binomial classification.

I brought back four skins as well as several living examples, and for the present have followed Mr. Schwann in assigning them to

the above species. My specimens agree very well with those brought back by Mr. Rothschild from the Wadi Natron, but seem to differ slightly from the typical series from Tripoli. In the subsequent working out of this race note should be taken of *G. burtoni* (F. Cuv. Trans. Zool. Soc. ii. p. 145, 1838), which Lataste has placed as a synonym of *G. pygargus*. The material at my disposal is at present too scanty to allow of a decided opinion, but I am inclined to the belief that *pygargus*, *burtoni*, and *tarabuli* will prove to be forms of one and the same species.

GERBILLUS PYGARGUS F. Cuv.

*Gerbillus pygargus* F. Cuv. Trans. Zool. Soc. ii. p. 142, pl. 25. figs. 10-14 (1838); de Wint. in Anders., Zool. Egypt, Mamm. p. 256 (1902).

One specimen brought home from No. 5 Station on the Sudan Railway by Capt. Flower.

GERBILLUS GERBILLUS (Oliv.).

*Dipus gerbillus* Olivier, Bull. des Sc. Phil. Paris, ii. p. 121 (1801).

*Gerbillus gerbillus* (Oliv.), de Wint. in Anders. Zool. Egypt, Mamm., p. 252 (1902).

This pretty little Gerbille, which may at once be distinguished by its bright reddish colour, seems to be very common near Cairo. I have a specimen collected by Capt. Flower in the Sudan which does not differ much from typical Cairo examples.

DIPODILLUS WATERSI de Wint.

*Dipodillus watersi* de Wint. Nov. Zool. viii. 4, p. 399, pl. xx. (1901); id. in Anders. Zool. Egypt, Mamm. p. 263 (1902).

Two examples of this species were brought back by Capt. Flower from Atbara, Sudan.

DIPODILLUS MACKILLIGINI Thos.

*Dipodillus mackilligini* Thos. Ann. Mag. N. H. ser. 7, vol. xiv. p. 158 (1904).

A single specimen of a Gerbille closely resembling this species was brought in from near Cairo. The type locality is on the Sudan frontier many miles to the south.

DIPODILLUS MARLE, sp. n.

While working a tract of country for further specimens of *Acomys russatus*, we caught two specimens of a small species of *Dipodillus* which is apparently undescribed. I have pleasure in naming this species after my wife, who has accompanied me on all my excursions and to whose keen eyesight I owe many of my captures.

Mostly nearly allied to *D. henleyi* but rather larger and much greyer in general tone of coloration.

Colour above yellowish buff, the hairs being slate-coloured at their bases and with blackish tips. On the flanks the hairs are white to their bases. The underparts, feet, sides of the face, a spot above and behind each eye and behind each ear white.

The *skull* differs from that of *henleyi* in the larger size of the bullæ and teeth, though the skull itself is but very little larger. The bullæ in size approximate to those of *D. amœnus*, a much larger species.

Measurements of type (in flesh):—Head and body 60 mm.; tail 87; hind-foot 18; ear 8.

*Skull*. Greatest length 21·5 mm.; basal length 19; greatest breadth 12; length of palate from hensenion 2; diastema 5; greatest length of bullæ 7; length of molar series 2·7.

*Type*. Coll. J. L. B. No. 288. Ad. Mokattam Hills near Cairo, 25th March, 1909.

One of the two specimens obtained was kept alive to ensure it being full grown, but it unfortunately escaped.

#### MERIONES CRASSUS Sundevall.

*Meriones crassus* Sundev. K. Vet.-Ak. Handl. p. 233, pl. 11. fig. 4 (cranium) (1843).

*Meriones crassus sellysi* Pomel, H. Schwann, Nov. Zool. xii. p. 3 (1905).

Four skins of a *Meriones* were brought back, two from Atbara, Sudan, where they were procured by Capt. Flower, and kept alive in the Giza Gardens, and two that were brought in alive by natives. It is impossible on this material, even combined with that at the British Museum, to work out this very difficult group. As they have large bullæ I have provisionally placed them under Sundevall's name, as the type of *crassus* came from Sinai. Those from the Sudan appear to be rather larger and greyer in colour, and have in life a rather more pointed snout.

#### PSAMMOMYS OBESUS Cretzschm.

*Psammomys obesus* Cretzschm., Rüpp. Atlas, p. 58, pl. 22 (1828); de Wint. in Anders. Zool. Egypt, Mamm. p. 270 (1902).

A single example of this form was given me by Dr. Todd, of the Public Health Department. It belongs to the typical form, and came from Abu Homos in the Delta near Alexandria.

#### MUS RATTUS Linn.

*Mus rattus* Linn. Syst. Nat. x. p. 61 (1758); de Wint. in Anders. Zool. Egypt, Mamm. p. 274 (1902).

*Mus alexandrinus* Desm. Nouv. Dict. Hist. Nat. xxix. p. 47 (1819).

*Mus tectorum* Savi, Nov. Giorn. Pisa, Feb. 1825.

A very abundant species throughout the country.

Two forms of this species occur :—

- a. *Mus rattus tectorum*,  
in which the fur of the underparts is white to its base.  
Average hind-foot measurement 35 mm.
- b. *Mus rattus alexandrinus*,  
in which the fur of the underparts is wholly or partially  
slate-coloured. Average hind-foot measurement 33 mm.

I made a considerable study of the variations of this species, the results of which I am now working out and hope to publish in a separate paper.

#### MUS NORVEGICUS Erxl.

*Mus norvegicus* Erxl. Syst. Reg. Anim. p. 381 (1777); de Wint. in Anders. Zool. Egypt, Mamm. p. 276 (1902).

This rat is now becoming very common in some districts though at present its distribution seems rather erratic. It is said not to occur in Cairo itself, though on the other (western) side of the Nile it is very numerous. Capt. Flower tells me that it has been found in the Zoological Gardens only within the last eight years, and in that time it has completely ousted *Arvicanthis* which used formerly to abound there, and quite fifty per cent. of the "rats" caught in the Gardens now belong to this species. I procured two specimens in the Fayum.

#### MUS MUSCULUS Linn.

*Mus gentilis* Brants, Muizen, p. 126 (1827).

*Mus orientalis* Cretzschmar, Rüpp. Atlas, p. 76, pl. 30 (1828).

*Mus musculus* Linn. Syst. Nat. x. p. 62 (1758); de Wint. in Anders. Zool. Egypt, Mamm. p. 277 (1902).

Two forms of this species are apparently found in the Giza Gardens. One form may, I think, be known as *Mus m. gentilis* (Brants), in which the hairs of the under parts are white to their bases and the whole animal is of a more fulvous tint.

The other is *Mus m. orientalis* Cretzschm. In this form the hairs of the under parts have slate-coloured bases. The general colour is greyer than in *Mus m. gentilis*, and a clear line of fawn along each side separates the colour of the upper from that of the under parts.

#### ARVICANTHIS NILOTICUS (Desm.).

*Arvicola niloticus* Desmarest, Ency. Méthod., Mamm. Suppl. p. 281 (1822).

*Arvicanthis niloticus* (Desm.) de Wint. in Anders. Zool. Egypt, Mamm. p. 279 (1902).

This species is extremely common throughout the country. It lives almost entirely in the open fields except during the

inundation, when it is forced to take refuge in the villages. Some specimens procured on the southern shores of Lake Mœris in the Fayum were indistinguishable from Cairo examples.

*ACOMYS CAHIRINUS* (Desm.).

*Mus cahirinus* Desm. Nouv. Dict. Hist. Nat. xxix. p. 70 (1819).

*Acomys cahirinus* de Wint. in Anders. Zool. Egypt, Mamm. p. 282 (1902).

This is the common House Mouse of Cairo, far outnumbering *Mus musculus*. A large series (86) was examined: they prove very constant in coloration, and with the exception of the fingers and toes they are of a uniform slaty blue all over. Slight traces of white are sometimes visible on the breast and along the median line. The sexes are alike in size and the average is:—Head and body 101 mm.; tail 105; hind-foot 18; ear 17. The largest individual (a male) measured:—Head and body 109 mm.; tail 119; hind-foot 19; ear 19.

*ACOMYS RUSSATUS* Wagn.

*Acomys russatus* Wagner, Abh. Akad. Munich, iii. p. 195, pl. 3. fig. 2 (1840); Tristram, Fauna Palestine, p. 11, pl. 3. fig. 1 (1884).

I procured a single example of this species within half an hour's ride of the Citadel on the Mokattam Hills, and it seems certainly strange that it should not previously have been recorded from Egypt.

It is an extremely well-marked species, and may easily be distinguished by the hairiness of the ears on both their inner and exterior surfaces and by the colour of the under parts being of a greyish white with no sharp line of demarcation from the colour of the upper parts. In all other species of *Acomys* the ears are naked and the under parts (except in *A. cahirinus*) are snowy white divided sharply from the colour of the upper parts.

The colour of the upper parts is a uniform reddish fawn, the brown tips to each spine being so minute as not in any way to affect the general colour. The feet are thickly covered with short spines and the tail is well clothed with stiffish hairs.

The skull differs from that of its allies in having the snout rather shorter and broader, the bullæ considerably larger and thus tending to constrict the basi-occipital and to make it more concave. The most noticeable point, however, is the size of the teeth and the length of the molar series, which latter measures 5 mm. as against 4 mm. in the other species. *A. nesiotis* Bate has a molar series of 4.5 mm. and in this measurement comes nearest to the present one, but the whole animal is larger, so that the increase in size of the teeth is merely in proportion to the general increase in the size of the animal. In other respects the skull of *nesiotis* agrees with that of *dimidiatus*.

For many details of this group I am indebted to Mr. R. C.



Wroughton, who kindly allowed me to look over MS. notes of his on the genus.

The measurements of my specimen, an adult female, are:—Head and body 97 mm.; tail imperf. 60 (certainly *shorter* than head and body when complete); hind-foot 18; ear 16·5.

*Skull.* Greatest length 29 mm.; basal length 24; greatest breadth 15; length of molar series 5; length of diastema 7; length of palate to henselion 23; length of nasals 11·5.

This is apparently a very scarce and local species. The type locality is Sinai, and Tristram found it near Massada at the southern end of the Dead Sea but not elsewhere in Palestine, and since then it does not seem to have been brought home by any collector. There is a specimen of Burton's in the Museum which has been referred to this species, but it is in such a bad state that identification is quite impossible.

It is certainly curious that this species, occurring so near Cairo, should never have been brought in by local Bedouins, but the fact that a second visit to the locality with two men to dig did not result in any further examples of this species, but brought to light two individuals of the new *Dipodillus* described in this paper, tends to show that the particular locality is certainly unworked either by natives or collectors and that such mammals may escape observation even when searched for\*.

#### JACULUS JACULUS (L.).

*Mus jaculus* Linn. Syst. Nat. x. p. 63 (1758).

*Jaculus jaculus* (Linn.), de Wint. in Anders. Zool. Egypt, Mamm. p. 305 (1902).

This species is frequently brought in from the desert near Cairo. It is smaller and yellower in general coloration than the next species.

#### JACULUS JACULUS GORDONI Thos.

*Jaculus gordonii* Thos. P. Z. S. 1903, p. 299.

The southern form of this species seems paler and rather larger than the typical race from Egypt. A single specimen from Khartoum, the type locality, was brought back.

#### LEPUS INNESI de Wint.

*Lepus innesi* de Winton, Nov. Zool. ix. p. 445 (1902).

A single example of this Desert Hare was shot by Mr. M. J. Nicoll in the desert near Aburoash. It was originally described from Gattah in the Fayum, so that this record extends its range to the north. One of the most distinctive points of this species is the long white hairs on the flanks and sides of the body.

The measurements of this specimen (a female) were:—Head and

\* Since the above was written Mr. Nicoll informs me that he has procured another example of this species in the Wadi Hof near Helouan.

body 453 mm. ; tail 77 ; hind-foot 96 ; ear from notch 102, from crown 128 ; breadth of ear 57.

*PROCAVIA BURTONI* (Gray).

*Hyrax burtoni* Gray, Ann. Mag. Nat. Hist. ser. 4, i. p. 43 (1868).

*Hyrax ruficeps* Thos. P. Z. S. 1892, p. 63 ; de Wint. in Anders. Zool. Egypt, Mamm. p. 324 (1902).

During my stay in Egypt the Zoological Gardens received, through the kindness of Capt. Burnet Stuart and Mr. Russell, three specimens of a Hyrax from the Wadi Abu Kalifa, east of Sohag, Upper Egypt. These animals lived only a day or two, and on their death were handed over to me by Capt. Flower together with a skull and flat skin collected near the same locality by Mr. Russell the previous autumn.

A careful comparison of these examples with the British Museum collection shows that while they agree with the cotypes of Gray's *H. burtoni*, they are easily distinguishable from specimens occurring in the Sudan and which are undoubtedly referable to *P. ruficeps*.

*P. burtoni* differs from *ruficeps* in having the crown of the head similar in colour to the rest of the upper parts and not markedly darker. The hairs surrounding the dorsal gland are also concolorous with the back, so that the yellow spot so conspicuous in *ruficeps* and some other forms is absent.

*Skull.* Mr. de Winton, referring to Burton's types, notes that they show considerable variation but agree in the length of the molar series. A comparison of a series of eight skulls from the Sudan with the three cotypes of *burtoni*, shows that the teeth in the first mentioned are constantly smaller than in the *burtoni* specimens.

All the examples now brought back, as well as the one from Etbai presented a few years ago by Capt. S. S. Flower, and

Measurements of Skulls.

	Greatest length.	Greatest breadth.	Basal length.	Palate length to hens.	Length of molar series.	Diastema.	Length of nasals.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Cotype <i>burtoni</i> . 120 a .....	93	54	...	42	35	11	22.5
" " 120 b ♀ .....	89	52	83	42	35	9	21
" " 120 c ♀ .....	84	52	...	38	36	9	19
Etbai. Capt. Flower .....	85	52	77	40	35	9	20
Wadi Abu Kalifa. Burnet Stuart. } ♀. 6732 B. }	86	50	79	39	35	9	20
" " Burnet Stuart } ♀. 5532 B. }	88	51	80	42	35	10	19
Wadi Fertili. Russell .....	84	50	...	39	35	10	17

mentioned by Mr. de Winton, agree with *burtoni* in having the large teeth as well as in the external characters mentioned above, so that I have no hesitation in separating *burtoni* from *ruficeps*.

*P. syriaca* from Palestine and Sinai also has the large teeth; the series available, however, is too small to allow a comparison between the Egyptian and Palestine species to be made. The latter appear to be darker and more washed with fulvous.

The measurements of an adult female of *burtoni* taken in the flesh are:—Head and body 460 mm.; hind-foot 72; ear 30.

I have since received from Capt. Flower the fresh skin of a specimen of *P. syriaca* from Sinai, which died in the Giza Gardens. It agrees well with skins of *P. syriaca* in the Museum. There is a clear yellow patch round the dorsal gland and a median dorsal stripe of the same colour runs towards the tail. In my opinion, therefore, this species is quite distinct from *P. burtoni*.

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November 23, 1909.

Dr. A. SMITH WOODWARD, F.R.S., Vice-President,  
in the Chair.

The Secretary read the following report on the additions made to the Society's Menagerie during the month of October 1909:—

The number of registered additions to the Society's Menagerie during the month of October last was 148. Of these 94 were acquired by presentation, 16 by purchase, 16 were received on deposit, 2 in exchange, and 20 were born in the Gardens.

The number of departures during the same period, by deaths and removals, was 161.

Amongst the additions special attention may be directed to:—

A Walrus (*Odobenus rosmarus*), from the Arctic Seas, purchased on October 1st.

A Grey Seal (*Halichoerus grypus*), from the North of Ireland, deposited on October 23rd.

A Brazilian Tapir (*Tapirus terrestris*), born in the Menagerie on October 6th.

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The Secretary read the following letter addressed to him by Prof. William Ridgeway, M.A., D.Sc.:—

In my paper on "The Differentiation of the Three Species of Zebras" in the last volume of the P. Z. S., p. 556, when writing about Ward's Zebra, I mentioned the doubts respecting the provenance of the type specimen presented to Prof. Cossar Ewart, F.R.S., by Mr. Rowland Ward. It was originally said to have been "traded out of Somaliland." But later Prof. Ewart gave me the information that its habitat was

probably the Lombori Hills not far from Naivasha, which I embodied in the Appendix to my 'Origin and Influence of the Thoroughbred Horse,' p. 508. In his paper on this specimen published later (P. Z. S. 1904, vol. ii. p. 181), Prof. Ewart states in his footnote that "It probably inhabits part of the area between the upper reaches of the Tana River and Lake Rudolf."

As it was very important to obtain full information, and, if possible, more specimens of this most interesting animal, I had inquiries made in British East Africa with a view to obtaining, if possible, a skin. My friend, Mr. C. W. Hobley, C.M.G., who has helped me much in such matters, endeavoured to find out the habitat of Ward's Zebra. He was told by Lord Delamere that he had shot near Baringo the animal, the skin of which had been named after Mr. Ward.

Messrs. Ward & Co. have now written to inform me that they most certainly did not acquire the skin from Lord Delamere, but that "the type *E. wardi* was purchased in the flesh from Barnum and Bailey's Menagerie."

Prof. Ewart, in a letter dated 9 Nov. 1909, writes to me as follows:—"About the provenance of 'Ward's Zebra' I am still ignorant. The zebra in question was, I believe, accidentally strangled by Barnum and Bailey's people when they were, for some purpose, putting on a halter. After correspondence with the owners all that Mr. Ward could learn was that, as I originally told you, the zebra was 'traded out of Somaliland.'"

I am of course responsible for any mistake in the matter, and, as I am anxious to have the error corrected as soon as possible, I will be very grateful if you will read this note at the next meeting of the Zoological Society and print it in the Proceedings.

Flendyshe, Fen Ditton,  
Cambridge.  
13 Nov., 1909.

Yours sincerely,  
WILLIAM RIDGEWAY.

POSTSCRIPT, 19th Feb., 1910.—My friend Mr. R. I. Pocock, F.Z.S. ('Field,' 20th Nov. 1909, p. 889) suggested that "Ward's Zebra is nothing but a hybrid between a Mountain Zebra (*E. zebra*) and Chapman's Zebra." He substantiated this view in the 'Field' (18th Dec. 1909) by a letter from Dr. Heck, the Director of the Berlin Zoological Garden, who states that he saw a hybrid Zebra resembling Ward's Zebra in Hagenbeck's Menagerie in 1902. He adds an extract from a letter from Mr. Hagenbeck, who speaks of this Zebra as a hybrid between *Equus zebra* and *Equus chapmani* that came from the Jardin des Plantes in Paris. "The photograph of this specimen," says Mr. Pocock, "taken by Hagenbeck and also kindly submitted to me by Dr. Heck, represents an animal differing in no important particulars from Ward's Zebra. It is therefore highly probable that Messrs. Barnum and Bailey procured Ward's Zebra from the Jardin des Plantes."

Mr. Pocock seems to have got the real provenance. If from the outset it had been stated that it was procured from Barnum and Bailey's, much unnecessary propagation of error would have been avoided. This story shows the immense importance of getting specimens direct from Africa, as is the case with the series of skins figured in my paper.—W. R.

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Dr. F. D. Welch, F.Z.S., exhibited photographs of a male Gayal (*Bibos frontalis*) living in the Society's Gardens, in which the lower halves of both fore and hind legs were almost entirely black instead of pure white as in the normal adult.

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#### BRITISH NESTING TERNS.

Mr. William Bickerton, F.Z.S., M.B.O.U., gave a lecture illustrated with about 120 lantern-slides showing the nesting haunts and habits of the five species of Terns which nested in the British Islands. These, given in the order in which they arrive during the Spring migration, are:—Sandwich Tern (*Sterna cantiaca*), end of March; Common Tern (*S. fluviatilis*) and Arctic Tern (*S. macrura*), latter part of April; Roseate Tern (*S. dougalli*), very end of April; Little Tern (*S. minuta*), early in May. He contributed the following notes on these Terns, arranged in the order in which the birds were photographed—Sandwich Tern, Common Tern, Little Tern, Roseate Tern, Arctic Tern. The three first-named he had photographed in a haunt where they all nested in the same locality, namely an area of sand-hills on the coast at Ravenglass in Cumberland.

Sandwich Tern (*Sterna cantiaca*).—This is the earliest to arrive in spring, and the first to nest. The Sandwich Terns at Ravenglass did not all nest in one area, but chose four or five different areas in different portions of the Sand-hills District. Some of these nesting areas were on quite bare sand; others amongst the long marram grass, and others in intermediate areas partly sandy and partly grass-covered. They are probably the most social of all the five species in that the nests are more concentrated in any particular nesting area. The eggs were always either one or two in number. On no occasion were three eggs found in any one nest, although the colonies were visited in three successive nesting-seasons—1905, 1906, and 1907. The young birds began to hatch out during the last week in May. The Sandwich Tern is the most insanitary of all the five species, inasmuch as the droppings of the birds always seemed to be deposited immediately round the outside of the nest—a point that had not been noticed with regard to any other species. In fact the condition of the surroundings of the nest was, roughly speaking, a test of the length of time that had elapsed since incubation commenced.

Common Tern (*Sterna fluviatilis*).—This was the latest of the three species to nest at Ravenglass—very few eggs being found before the end of the first week in June, at which date large numbers of the Sandwich Terns were hatched out. He had been on the nesting area as late as July 7th and failed to find a single young bird hatched out. At that time the Sandwich Terns had absolutely completed their nesting season. There were probably 1000 to 1500 pairs of Common Terns nesting, and the following

result was noted in a casual walk across their nesting area on July 2nd, 1907:—

	<i>Total.</i>
102 nests contained 1 egg each	= 102 eggs
121 " " 2 eggs "	= 242 "
9 " " 3 " "	= 27 "
232 nests	371 eggs

He had observed very considerable variation in the position and surroundings of the nests. Some of these were made in long grass; some in short grass; others on quite bare sand, and others on a bank of shingle. The materials of the nests also showed great variation, but generally speaking it was the exception to find a bulky nest of this species. The large majority were simply holes scratched in the sand or grass without either structural or lining material. He had noticed very considerable variation in the colour of the eggs, and this applied both to the ground-colour and markings. As a rule the ground-colour was much duller than that of either the Sandwich or the Little Tern.

Lesser or Little Tern (*Sterna minuta*).—This was the least numerous of all in the locality named—the colony including not more than about half a dozen pairs. The Lesser Terns were generally less social in their habits than any of the others. They also nested further apart, and he never found it possible to include two nests in the same half-plate photograph. Moreover, the Little Terns always seemed to choose a nesting area quite near to the sea, or river estuary, and for the most part on a sand-bank only just above high-water mark. The white crescentic band on the forehead characteristic of this species was clearly shown in the photographs. Most of the Lesser Terns seemed to use small stones and broken fragments of shell as nest material, and in this respect they were quite characteristic.

Roseate Tern (*Sterna dougalli*).—The series of photographs of these birds shown by the Lecturer were unique, being the only series ever taken within the British Isles. He did not give the locality in which the photographs were obtained, as he wished to do what was possible to protect this rarest and perhaps most beautiful species of the group. Roughly speaking there were in the nesting area referred to about 10,000 pairs of Arctic Terns and 1000 pairs of Common Terns. So far as he could judge, there were not more than from fifteen to twenty pairs of Roseates, and of these he managed to find eight distinct and clearly identified nests, each of which contained only one egg. From the field naturalist's point of view there were four marks of distinction of the Roseate Tern, viz., the roseate colour of the breast, the black bill reddish just at the base, the harsh cry "errark-errark," and the long streamers of the tail. He cited Mr. H. E. Dresser's statement that "the wing of this species was nine inches in length and the tail nine inches in length, and that the lateral feathers of the tail extended nearly six inches beyond the central ones."

He had found that the Roseate Terns seemed to prefer

association with the Common rather than with the Arctic Terns although individually the pairs of Roseate Terns seemed to select more isolated and somewhat concealed nesting sites than any other species. Four of the eggs found he had carefully measured and found the largest to be  $1\frac{1}{10}$  inches long and the smallest  $1\frac{3}{10}$ . On July 3rd, 1908, the last day of his visit, none of the Roseate Terns or Common Terns in this area had hatched out, but quite a number of young Arctic Terns were found in the nests, some of which were photographed. He found it rather difficult to understand the statement of Dr. Louis Bureau with regard to the date of departure of this species (see report of the Ornithological Congress held in London 1905):—

“The Roseate Tern arrived on the coast (of France) about the 15th of May, commenced nesting about the 5th of June, and departed on the 10th of July approximately.”

He hardly thought it possible for the young Roseate Terns to leave their nesting islands within say a fortnight of being hatched, and if Dr. Bureau's statement were to be accepted, it could only mean that the old birds departed, leaving their nestlings in an almost helpless condition.

Arctic Tern (*Sterna macrura*).—He estimated that there were 10,000 pairs of this species on the nesting area, which was probably one of the largest colonies in the British Isles. They evinced a marked preference for nesting just where the grassy portions of the island intermingled with ridges and areas of bare rock. For instance, he had marked out an area roughly rectangular in form, 140 yards long by 30 yards across. On each of the long sides of this area a ridge of bare rocks protruded through the grass, and walking along each of these two rocky ridges and finally walking down the central line of the grassy area, he had noticed nests of the Arctic Terns as follows:—

Along Eastern rock ridge	82	nests with	133	eggs.
” Western ”	”	93	”	” 160 ”
Total	<u>175</u>		<u>293</u>	

Along the central line of the grassy area there were 34 nests with 62 eggs.

Again he had found extraordinary differences both in the sites chosen for nests and in the materials of which the nests were made, and a type series of such nesting sites and materials was well shown in the photographs. A series of very beautiful slides showing the Arctic Terns alighting at their nests with extended wings was also shown. He had noticed that the Arctic Terns were not only more vocal, but bolder and more vicious than any of the other species. They would not only swoop at a passer-by but would in many instances actually strike him as well. He had noticed that both sexes shared in the duties of incubation. The first young bird was hatched out on June 29th and on July 1st he counted thirteen young ones, although this number was by no means exhaustive.